MATCH LINE A

UPPER DARBY

TOWNSHIP

SPRINGFIELD TOWNSHIP

BROOKWOOD LANE

ASHLAND AVENUE

GREEN LANE

MUCKINIPATES

PROSPECT AVENUE

BROOKWOOD LANE

PROVIDENCE ROAD

Culvert

shopping center

SEPTA

Railroad Right of Way

SECANE AVE.

not open

PRIMOS AVE.

RHOADS AVE.

BELMONT AVE.

ASHURST AVENUE

BUNTING AVENUE

BROADWAY AVE.

Bishop Hills Apt.

shopping center

Culvert

Bank

PIKE

DELMAR DRIVE

BALTIMORE

CLIFTON HEIGHTS BOROUGH

Upper Darby Township

Clifton Heights Borough

ALVERSTONE

Upper Darby Township Park

CREEK

WESTBROOK DRIVE

BRITTANY DRIVE

BISHOP SHIPLEY LANE

SPRINGFIELD AVENUE

SPRINGFIELD ROAD

GLENOLDEN BOROUGH

RIDLEY TOWNSHIP

DARBY TOWNSHIP

POST ROAD

OUR LADY OF FATIMA

ARMSTRONG AVENUE

Apt. Bldg.

Condominiums

YMCA

Ridley Township Park

Upper Darby Township

WESTBRIDGE ROAD

BROOKWOOD

STRATFORD RD.

TREMONT DR.

OAKWOOD DR.

WAKEFIELD DRIVE

HILLCREST DR.

OAKWOOD DR.

SURRY LANE

ACADEMY AVENUE

BOULEVARD

MAC DADE

HIBBS

AVENUE

RAILROAD RIGHT of WAY

CSX

KNOWLES AVENUE

SHEET NO. 1 of 2 MATCH LINE

WYNNBROOK ROAD

MATCH LINE A

ASHLAND AVENUE

CREEK

SHEET NO. 2 of 2

Clifton Heights Borough

KELLY&CLOSE
CONSULTING ENGINEERS & SURVEYORS

Muckinipates Authority
c/o David P. Damon, P.E., P.L.S.
H. Gilroy Damon Associates, Inc.
P.O. Box 1158
1343 Chester Pike
Sharon Hill, PA 19079

File No.: CHB-250-19
February 18, 2019

RE: 2018 Chapter 94 Report
Clifton Heights Borough

Dear Mr. Damon:

Pursuant to your request, enclosed are six (6) copies of the Clifton Heights Borough Chapter 94 Report for the year 2018. If you have any questions or need additional information, please feel free to contact me.

Sincerely,

J. P. Kelly

James P. Kelly, P.E.
Borough Engineer

Enc.

cc: File

Kelly & Close Engineers

1786 Wilmington Pike

Glen Mills, Pennsylvania 19342

610.358.9363 fax 610.358.9376

Chapter 94
Municipal Wasteload Management
Annual Report

2018 Chapter 94 Annual Report
Muckinapates Report
Clifton Heights Borough
Delaware County

Prepared By:

KELLY & CLOSE ENGINEERS
CONSULTING ENGINEERS & SURVEYORS

1786 Wilmington Pike / Suite 300
Glen Mills, PA 19342
Ph: 610-358-9363
Fax: 610-358-9376

Prepared For:
Clifton Heights Borough, Delaware County
30 S. Springfield Road
Clifton Heights, PA 19018

February 15, 2019

James P. Kelly, P.E.
Kelly & Close Engineers

Table of Contents

ATTACHMENTS LIST

INTRODUCTION

This section should give a brief description of the sewer service area covered by the report. List all tributary municipalities that send sewage to the Wastewater Treatment Facility (WWTF), and list those portions of the service area that are owned/operated by other permittees.

Discuss the age of the WWTF and a general description of the wastewater treatment process. If available, a process diagram could be included in an appendix to the report.

Clifton Heights Sewer System is a gravity collection sanitary system. The total system consists of 254 manholes and 62,709 linear feet of sewer main. Of that system, 6 brick manholes and 740 LF of 8" VCP sewer main are tributary to the Muckinipates Interceptor. (The remaining 248 manholes and 61,969 LF of sewer main are tributary to the DCJA system). The age of the system is estimated to be approximately 70-100 years old. There are no combined sewers and no pump stations within the system.

A map showing the location of the sewer mains is attached in Appendix A.

HYDRAULIC AND ORGANIC LOADINGS

Provide a line graph depicting the monthly average flows (in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph should include a line depicting the hydraulic design flow of the plant included in the Water Quality Management Part II Permit.

Provide a line graph depicting the monthly average organic loadings in pounds per day (lbs/day) BOD_5, for each month for the past 5 years and projecting the monthly average organic loading for the next 5 years. The graph should also include a line depicting the organic loading design (expressed in lbs/day) of the plant included in the Water Quality Management Part II Permit.

List the permitted capacities of your WWTF:
Annual Average (AA) Capacity
Hydraulic Design Capacity (or "max month") – if applicable
Organic Design Capacity

Discuss the hydraulic loading of your WWTF including, at a minimum:

N/A-No WWTP's exist within Clifton Heights Borough.

5-YEAR HYDRAULIC AND ORGANIC LOADING PROJECTIONS

This section should provide a description of the basis for the hydraulic and organic loading 5-year projections, including the data and calculations that were used to determine them. Your projections should include the following elements:

N/A – No WWTP's exist within Clifton Heights Borough.

SEWER EXTENSIONS

This section should provide the following information:

a. A map showing all sewer extensions constructed within the past calendar year;
b. A map showing sewer extensions approved or exempted in the past year in accordance with the PA Sewage Facilities Act (35 P.S. §§ 750.1—750.20) and Chapter 71 (relating to administration of the sewage facilities program), but not yet constructed;
c. A map showing all known proposed projects which require public sewers but are in the preliminary planning stages.
d. A list summarizing each extension or project.
e. If a sewer extension approval or proposed project includes schedules for completing the project over time, the list should describe the projects projected build-out over time.

This section should clearly indicate whether or not each of the above requirements is applicable for the report's calendar year. For example, if no sewer extensions were constructed in the past calendar year, clearly indicate this in the report.

N/A. There were no proposed extensions conducted in the past year nor are any extensions proposed within the next five years. The Borough is essentially built out, with all properties connected to public sewers.

PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE, AND REPAIR

This section should include a detailed discussion of the permittee's program for sewer system:

a) Monitoring;
b) Maintenance;
c) Repair;
d) Rehabilitation;
e) Routine and special activities;
f) Personnel and equipment used;
g) Sampling frequency;
h) Quality assurance;

i) Data analyses;
j) Infiltration/inflow (I/I) monitoring;
k) Maintenance and control of combined sewer regulators during the past year, where applicable.

Provide a detailed description of actual work conducted during the calendar year for each of the items noted above, including the findings of those efforts and any proposed follow-up work and/or investigations for the subsequent year.

Where flow monitoring has been conducted, provide an analysis of the flow-meter data. Have portions of the system shown evidence of I/I? What work is currently being conducted or proposed, to address excess flows?

The Borough is utilizing TV inspection reports and flow meter data as a means to identify areas in need of repair, giving high priority to structural deficiencies and areas susceptible to inflow and infiltration. Cured-in-place pipe re-lining has been the rehabilitation method of choice, effectively addressing both infiltration and structural concerns.

Clifton Heights continues to utilize a database of the sanitary system in order to analyze the recorded conditions and prioritize repairs. In addition, the available flow meter data is reviewed regularly to monitor inflow and infiltration.

The Borough owns a jet-vac machine and the highway department continues to clean the sanitary mains on an as-needed basis.

The Clifton Heights Borough Engineer monitors and reviews DELCORA meter data to analyze flow trends and effects of rainfall, assess effectiveness of I & I rehab work and isolate problem areas.

CONDITION OF THE SEWER SYSTEM

This section requires a discussion of the condition of the sewer system, including portions where conveyance capacity is exceeded or will be exceeded in the next 5 years. It should include a discussion of those portions of the system where rehabilitation or cleaning is needed or underway to maintain the integrity of the system and prevent or eliminate:

a. Bypassing;
b. Combined sewer overflows;
c. Sanitary sewer overflows;
d. Excessive infiltration;
e. Other system problems.

Include a discussion of available existing and future capacity. The discussion should include the following:

f. The age of the sewer system.
g. The type of material of which the system is made (i.e., brick, vitrified clay, PVC, Orangeburg, etc.).
h. An analysis that determines whether the existing sewer lines are sized properly for the connected population.
i. A discussion of any portions of the system that should be repaired, replaced or rehabilitated, including a timeframe by which any proposed actions are expected to be completed.

Discuss any portions of the sewer system in which surcharging occurs:

j. How often does the system surcharge in each location?
k. What size storm events create surcharging sewer lines?
l. What is the cause of the surcharging?
m. Sewer systems that surcharge during wet weather indicate a lack of hydraulic capacity and are considered to be in a projected hydraulic overload. For such conditions, permittees should submit a CAP and CMP with the annual report, as required by 25 Pa Code § 94.22.

Provide a list of all SSOs that occurred during the calendar year, including their cause and location (a copy of the Southeast Regional Office's SSO Report Form submitted by the permittee is acceptable). SSOs related to wet weather should be discussed:

n. Explain if there is a history of SSOs at each reported location. If a trend of SSOs at specific locations during rain events is documented, this indicates a lack of hydraulic capacity and is considered a hydraulic overload condition.
o. Why are SSOs occurring at each location? Has a hydraulic analysis been conducted, and if so, what were the results and recommendations for corrective action?
p. Provide an analysis of flow metering that has been conducted.
q. Sewer systems that experience SSOs are considered to be in an existing hydraulic overload. A CAP and CMP should be submitted with the annual report, as required by 25 Pa Code § 94.21.

The Department strongly recommends that existing capacity be documented with flow meter data. Whether flow meters are already in place, or are proposed to be used throughout the system to gather flow data on sub-basin approach – existing capacity should be documented with data that describes actual flow conditions during dry-weather and wet weather conditions:

r. Dry weather flows should be monitored to document baseline flows and for comparison purposes, to determine the extent of I/I within the collection and conveyance system.
s. Wet weather capacity should be determined by documenting the peak instantaneous (or peak hourly) flow rate as compared to the

hydraulic carrying capacity of the sanitary sewer (i.e., Manning's equation).

Clifton Heights Sewer System is a gravity collection sanitary system. The total system consists of 254 manholes and 62,709 linear feet of sewer main. Of that system, 6 brick manholes and 740 LF of 8" VCP sewer main are tributary to the Muckinipates Interceptor. (The remaining 248 manholes and 61,969 LF of sewer main are tributary to the DCJA system). The age of the system is estimated to be approximately 70-100 years old. There are no combined sewers and no pump stations within the system. There are no combined sewers and no pump stations within the system. It appears that the public sewer lines are properly sized for the connected population. The connected population has remained the same and no growth relative to a projected increase in sewer flows is expected within the next 5 years. No know surcharges occur within the system and no SSOs occurred within Clifton Heights during the last permit year.

The Borough does not anticipate exceeding the available pipe capacity, but is committed to reducing the overall flow volume and potential for sewer breaks and/or backups. By maintaining a comprehensive system database, in conjunction with flow meter monitoring, regular maintenance, and a long term repair plan, the Borough has been proactive in ensuring the continued service of an aging utility.

SEWAGE PUMPING STATIONS

If applicable, this section should provide a discussion of the condition of sewage pump stations, including a comparison of the maximum pump rate with present maximum flows and the projected 2-year maximum flows for each station:

Not applicable, no pump station exists within Clifton Heights Borough.

INDUSTRIAL WASTES

If applicable, the report on industrial wastes (IW) should include:

a. A copy of an ordinance or regulation governing IW.
b. A discussion of the permittee's program for surveillance and monitoring of IW discharges to the sewer system during the past year.

Clifton Heights incorporates DELCORA's Rules and Regulations in their ordinance, by reference. However, since the Borough is unaware of any industrial waste discharges, there has been no pretreatment or surveillance/ monitoring during the past year.

c. A discussion of specific problems in the sewer system or at the WWTF, known or suspected to be caused by IW discharges and a summary of steps being taken to alleviate or eliminate the problems.

d. A list of any such industries known to be discharging wastes that create a problem and actions taken to prevent potential or recurring problems caused by the IW dischargers.

e. Provide documentation regarding any actions taken against IW dischargers.

To our knowledge, all sewage which discharges into the system is domestic in nature. No "industrial waste" discharges into the system, therefore no pre-treatment of the waste is required.

CORRECTIVE ACTION PLAN

If an existing or projected overload condition has been identified at the WWTF or in a portion of the collection and conveyance system owned by any permittee within the WWTF's sewer service area, the respective permittee should provide a CAP and CMP in the Chapter 94 Report to address the overload condition as required under 25 Pa Code §§ 94.21 and 94.22. The attached CAP and CMP development guidelines should be referenced for preparation of these documents.

N/A

CALIBRATION REPORTS

As required by 25 Pa Code § 94.13, flow measuring, indicating, and recording equipment should be calibrated annually, and the calibration report should be included in the annual report submitted under § 94.12 (relating to annual report).

Any such equipment at the WWTF and/or within the collection and conveyance system should be calibrated (at a minimum) at this frequency. Calibration reports for each permittee's system should be included in the respective annual reports.

N/A

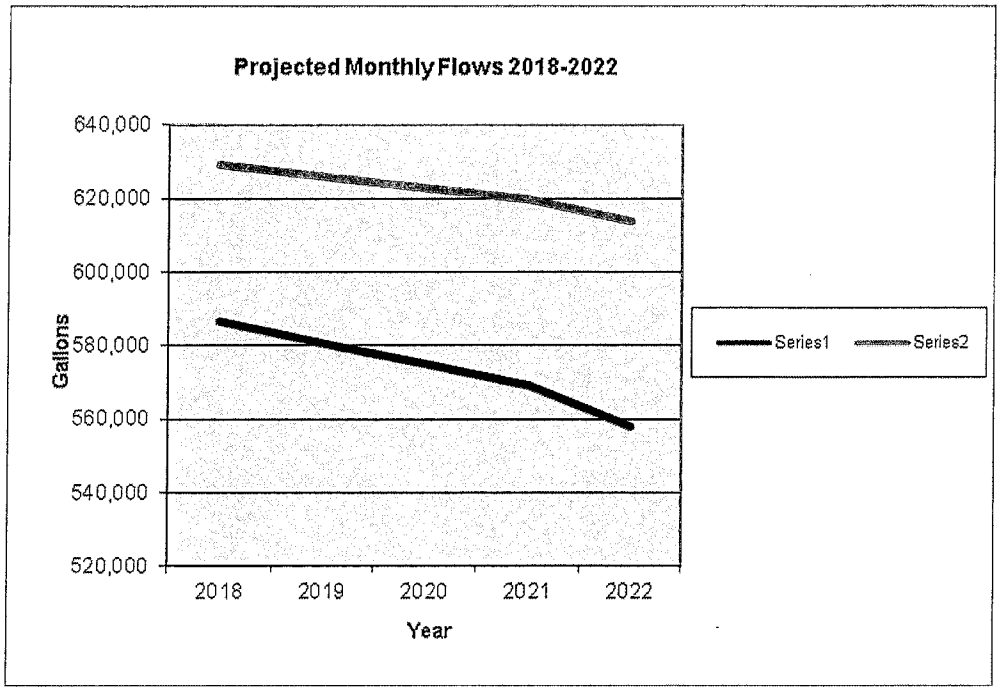
TRIBUTARY MUNICIPALITY REPORTS

Each tributary municipality (or authority) that is the permittee of its own collection and conveyance system, but which sends sewage flow to the WWTF submitting this report, must submit their respective information for inclusion in the WWTF's Chapter 94 Report. Each permittee's report should contain all of the information required in 25 Pa Code § 94.12 (Annual Report), excluding that information pertaining to a WWTF or industrial waste dischargers that would be inspected and/or regulated by the permittee of the WWTF. Include copies of any correspondence with tributary municipalities/authorities regarding acquisition of this information.

The estimated average monthly flow for 2017 was 592,492 gallons and the estimated maximum monthly flow was 632,416 gallons. Flows to the Muckinipates System from Clifton Heights Borough are un-metered and have been calculated based on the number of estimated EDU's applied to the average GPD of the metered areas. The 2017 average GPD for metered areas in the Borough was 270 GPD per EDU. Projected flows should be reduced over the next five years through an ongoing I&I abatement program. The current number of total connections to the system remains at 21.

The expected population change in the borough over the next 5 years is negligible and there are no planned projects affecting the Muckinipates system. Projected hydraulic loading due to population change should remain the same.

Year	Average Monthly Flow (GAL)	Maximum Monthly Flow (GAL)
2018	586,567	629,254
2019	580,701	626,108
2020	574,894	622,977
2021	569,145	619,862
2022	557,819	613,679


Projected Monthly Flows 2018-2022
640,000
620,000
600,000
580,000
560,000
540,000
520,000
Gallons
2018
2019
2020
2021
2022
Year
Series1
Series2

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Clifton Heights Borough**	Permit No.:	**PA**
Mailing Address:	**30 S. Springfield Road**	Effective Date:	**n/a**
City, State, Zip:	**Clifton Heights, Pa 19018**	Expiration Date:	**n/a**
Contact Person:	**James P. Kelly, P.E.**	Renewal Due Date:	**n/a**
Title:	**Borough Engineer**	Municipality:	**Clifton Heights Borough**
Phone:	**610-358-9363**	County:	**Delaware County**
Email:	**jpkelly@kellyengineers.com**	Consultant Name:	**Kelly & Close Engineers**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:

   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:

   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   n/a

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

Clifton Heights Borough contains no WWTP or pump stataions; only a collection and conveyance system for a total of 254 manholes, 62,709 LF of sewer main. 248 Manholes and 61,969 LF of sewer main are tributary to the DCJA Interceptor and 6 manholes and 740 LF of pipe are tributary to the Muckinapates Interceptor. A map has been included in the attached Chapter 94 Report. There were no sewer extensions conducted in the past year nor are any extensions proposed within the next five years. The Borough is essentially built out, with all properties connected to public sewers.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Clifton Heights Borough continues to monitor/perform annual repair/rehabilitation to their sewer collection system. The Borough utilizes TV inspection reports and flow meter data to identify areas in need of repair. Clifton Heights continues to utilize a database of the sanitary sewer system to analyze recorded conditions and prioritize repairs. The available flow meter data is reviewed regularly to monitor inflow and infiltration. The Borough owns a jet-vac machine to clean sanitary mains on an as needed basis. See attached Chapter 94 report for additional information.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

The Clifton Heights Borough Sanitary Sewer System is a gravity collection sanitary sewer system that is in good working condition and is structurally sound with no known capacity problems. The public sewer lines are properly sized for the connected population. The connected population has stayed the same or decreased over the last 5 years. No growth, relative to a projected increase in sewer flows, is expected in the next 5 years. No known surcharges occur within the system and no SSOs occurred within Clifton Heights Borough during the last permit year. See attached Chapter 94 report for additional information.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations
☐ The collection system does contain pump stations (Number –)
☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload. N/A

Check the appropriate boxes:

- ☐ This report demonstrates an existing hydraulic overload condition.
- ☐ This report demonstrates a projected hydraulic overload condition.
- ☐ This report demonstrates an existing organic overload condition.
- ☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**) N/A

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**) N/A

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**) N/A

RESPONSIBLE OFFICIAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

John J. Perfetti
Name of Responsible Official

Signature

610-623-1000
Telephone No.

2/15/19
Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

James P. Kelly, P.E.	J. P. Kelly
Name of Preparer	Signature
610-358-9363	2-15-19
Telephone No.	Date

KELLY & CLOSE ENGINEERS

CLIFTON HEIGHTS BOROUGH

SANITARY SEWER MAP
CLIFTON HEIGHTS BOROUGH
DELAWARE COUNTY, PENNSYLVANIA

APPENDIX "A"

SHEET 1 of 1

Darby Township

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Darby Township**	Permit No.:	**PAN/A**
Mailing Address:	**21 Bartram Avenue**	Effective Date:	**N/A**
City, State, Zip:	**Glenolden, PA 19036**	Expiration Date:	**N/A**
Contact Person:	**Matthew Judge**	Renewal Due Date:	**N/A**
Title:	**Assistant Township Manager**	Municipality:	**Darby Township**
Phone:	**610-586-1514**	County:	**Delaware**
Email:	**matt.judge@darbytwp.org**	Consultant Name:	**Catania Engineering Associates, Inc.**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:

   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:

   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

Please note that the Chapter 94 Spreadsheet was used to show monthly average flows and projections; it is understood that this report is for a collection system only.

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)

☐ List summarizing each extension or project attached (**Attachment**)

☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

No sewer extensions were constructed or approved within the past calendar year. A copy of the sanitary sewer system is attached.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Township personal and equipment are utilized for sewer system operation and maintenance on an "as-needed" basis. The Township, in coordination with DELCORA has flow metering equipment to monitor flows through the sanitary system. CSL Services, Inc. was contracted by DELCORA to calibrate and maintain the flow monitoring equipment throughout 2018. Calibration reports are maintained by DELCORA. Darby Township utilizes flow data to assist in the identification of areas that require attention.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

No SSOs were reported for the 2018 calendar year.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations

☐ The collection system does contain pump stations (Number –)

☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☒ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)

☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

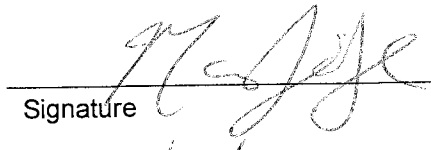
☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Matthew Judge	
Name of Responsible Official	Signature
610-586-1514	2/19/19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Elizabeth A. Catania
Name of Preparer

Elizabeth A Catania, PE.
Signature

610-532-2884
Telephone No.

4/2/19
Date

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PADEP Chapter 94 Spreads
Sewage Treatment Pl

Reporting Year: 2018

Facility Name: Darby Township - Muckinipates

Permit No.:

Persons/EDU: 3.5

Existing Hydraulic Design Capacity: MGD
Upgrade Planned in Next 5 Years? Year:
Future Hydraulic Design Capacity: MGD

Existing Organic Design Capacity: lbs BOD5/day
Upgrade Planned in Next 5 Years? Year:
Future Organic Design Capacity: lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2014	2015	2016	2017	2018
January	0.40096	0.44966	0.50031	0.42157	0.46275
February	0.50152	0.46286	0.6392	0.44174	0.64961
March	0.42902	0.55532	0.49071	0.55542	0.65538
April	0.42701	0.4422	0.4506	0.5584	0.51467
May	0.42527	0.34993	0.46688	0.53948	0.4907
June	0.36745	0.41307	0.40799	0.47703	0.44735
July	0.3494	0.37335	0.37041	0.43812	0.40073
August	0.34945	0.3052	0.34084	0.43455	0.45355
September	0.32331	0.31443	0.33042	0.37684	0.48545
October	0.32131	0.35632	0.33342	0.37648	0.46556
November	0.38487	0.34539	0.33248	0.37678	0.55927
December	0.41998	0.4814	0.37655	0.40054	0.56285
Annual Avg	0.39162971	0.40409478	0.41998377	0.44974526	0.51232406
Max 3-Mo Avg	0.45251743	0.48928132	0.54340384	0.55109933	0.60655624
Max : Avg Ratio	1.16	1.21	1.29	1.23	1.18
Existing EDUs	1,899.0	2,135.0	2,135.0	2,135.0	2,135.0
Flow/EDU (GPD)	206.2	189.3	196.7	210.7	240.0
Flow/Capita (GPD)	58.9	54.1	56.2	60.2	68.6
Exist. Overload?					

Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2014	2015	2016	2017	2018
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Annual Avg					
Max Mo Avg					
Max : Avg Ratio					
Existing EDUs	1,899	2,135	2,135	2,135	2,135
Load/EDU					
Load/Capita					
Exist. Overload?					

Projected Flows for Next Five Years (MGD)

	2019	2020	2021	2022	2023
New EDUs	1.0	1.0	1.0	1.0	1.0
New EDU Flow	0.0002	0.0002	0.0002	0.0002	0.0002
Proj. Annual Avg	0.43576	0.43596	0.43616	0.43636	0.43656
Proj. Max 3-Mo Avg	0.52896	0.5292	0.52944	0.52969	0.52993
Proj. Overload?					

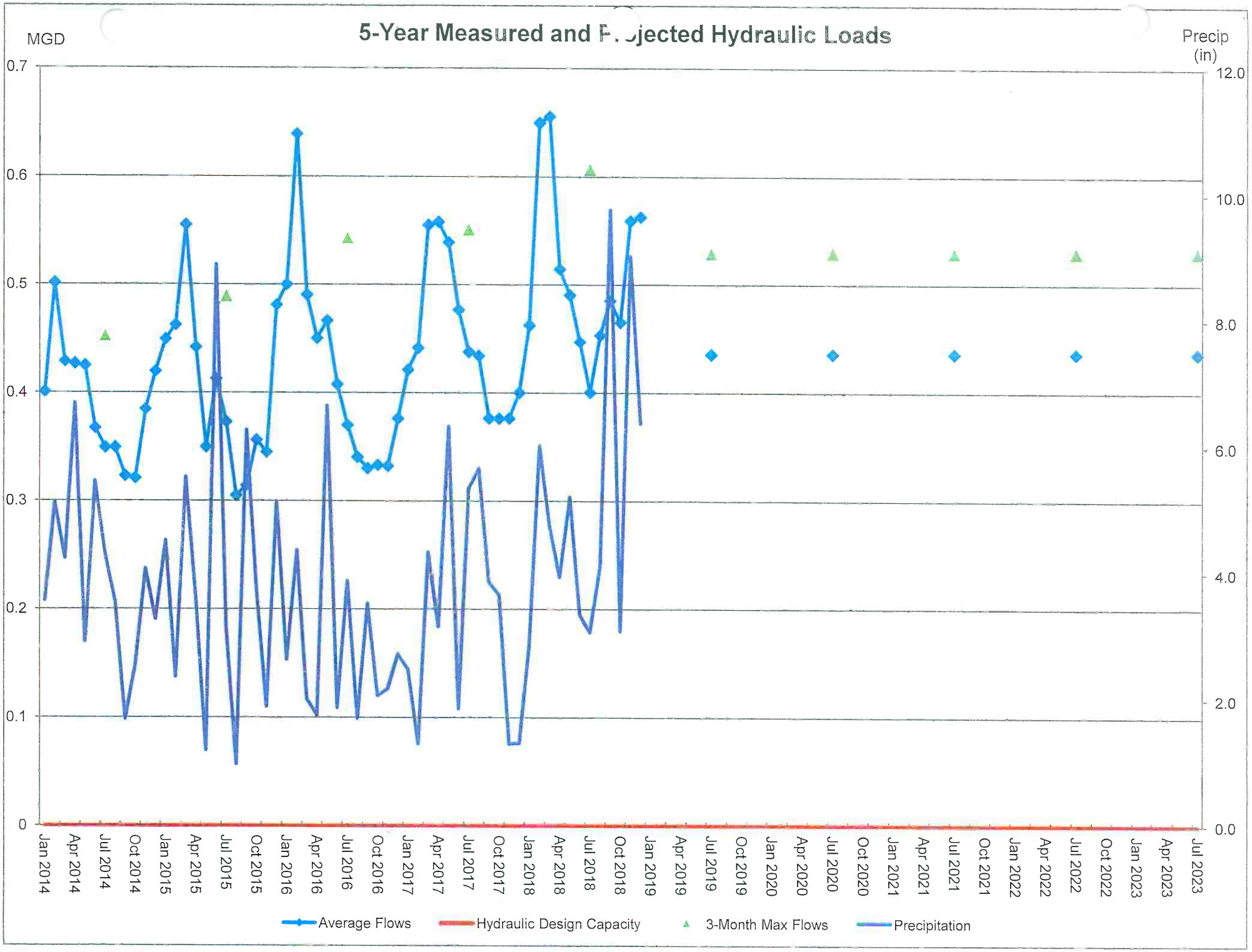
Projected BOD5 Loads for Next Five Years (lbs/day)

	2019	2020	2021	2022	2023
New EDUs	1	1	1	1	1
New EDU Load	0.584	0.584	0.584	0.584	0.584
Proj. Annual Avg	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Proj. Max Avg	#DIV/0!				
Proj. Overload?	#DIV/0!				

Show Precipitation Data on Hydraulic Graph?

Total Monthly Precipitation for Past Five Years (Inches)

Month	2014	2015	2016	2017	2018
January	3.56	4.52	2.63	2.48	2.85
February	5.12	2.36	4.36	1.3	6.02
March	4.23	5.52	2.01	4.33	4.74
April	6.69	3.58	1.75	3.15	3.94
May	2.91	1.2	6.65	6.33	5.21
June	5.46	8.89	1.87	1.86	3.34
July	4.3	3.16	3.88	5.35	3.06
August	3.55	0.98	1.7	5.66	4.11
September	1.69	6.27	3.52	3.86	9.76
October	2.54	3.76	2.06	3.66	3.08
November	4.07	1.89	2.17	1.3	9.03
December	3.27	5.14	2.72	1.31	6.38


5-Year Measured and Projected Hydraulic Loads
MGD
Precip (in)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Jan 2014
Apr 2014
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
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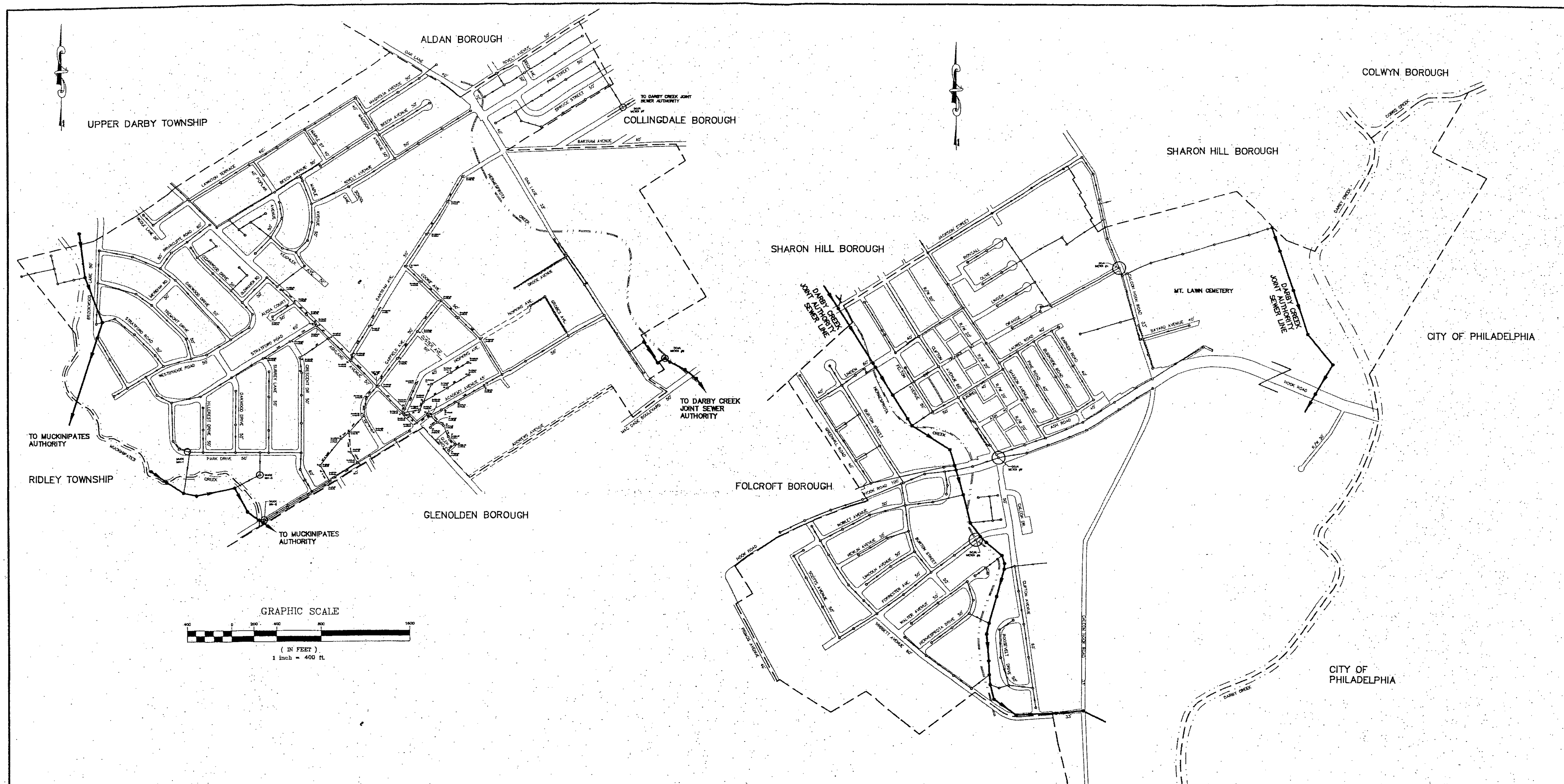
Jul 2021
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
Apr 2023
Jul 2023
Average Flows
Hydraulic Design Capacity
3-Month Max Flows
Precipitation

DARBY TOWNSHIP MONTHLY FLOW METER DATA

Meter No.	Meter Location	Total EDUs	Outside EDUs	January			February			March				April			May				June			Comments
				Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Missing Volume	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Missing Volume	Recorded Volume	Gallons EDU/Day	Outside EDUs	
1	423 Park Avenue	1,000		8,723,642	281		9,551,206	341		10,947,242	353			8,937,784	298		9,429,992	304			8,368,201	279		
2	246 Academy Avenue	610	135	2,392,287	45	*-1,723,423*	4,319,644	174	*-2,008,197*	5,149,856	157	*-2,840,195*		3,192,274	81	*-2,043,726*	2,512,378	39	*-1,932,386*		2,088,755	30	*-1,656,144*	Outside EDUs from Glenolden Borough. Using average of all Glenolden meters for estimate.
3	231 Park Drive (near Surry Lane, behind backyard fence)	55		1,581,592	928		2,051,980	1,332		2,285,547	1340			1,725,450	1046		1,626,984	954			1,465,971	888		
	Unmetered Areas (average volume from all meters)	470		3,371,128	231		4,274,430	325		4,774,478	328			3,628,456	257		3,574,755	245			3,153,848	224		Use average EDU from all Propsect meters for estimate
	TOTAL	**2,135**	**135**	**14,345,226**			**18,189,062**			**20,316,928**				**15,440,238**			**15,211,723**				**13,420,631**			

Meter No.	Meter Location	Total EDUs	Outside EDUs	July			August			September				October			November				December			Comments
				Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Missing Volume	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Missing Volume	Recorded Volume	Gallons EDU/Day	Outside EDUs	
1	423 Park Avenue	1,000		8,036,046	259		8,879,812	286		9,482,025	316			9,446,861	305		11,147,628	372			9,996,521	322		
2	246 Academy Avenue	610	135	1,662,562	10	*-1,514,646*	1,996,976	13	*-1,805,050*	1,880,865	2	*-1,849,930*		1,883,762	7	*-1,780,352*	2,730,572	4	*-2,667,922*		4,207,371	118	*-2,464,961*	Outside EDUs from Glenolden Borough. Using average of all Glenolden meters for estimate.
	231 Park Drive (near Surry Lane, behind backyard fence)	55		1,319,231	774		1,684,257	988		1,615,082	987		*12,949*	1,513,548	888		1,615,082	985		*9,942*	1,609,172	944		
	Unmetered Areas (average volume from all meters)	470		2,919,282	200		3,304,129	227		3,422,396	243			3,398,690	233		3,942,871	280			4,100,398	281		Use average EDU from all Propsect meters for estimate
	TOTAL	**2,135**	**135**	**12,422,475**			**14,060,124**			**14,563,387**				**14,462,509**			**16,778,172**				**17,448,500**			



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NO.	DATE	REVISION	DWN. BY	CKD. BY
2	2-10-14	FLOW METER UPDATES	N.E.M	
2	2-18-13	FLOW METER UPDATES	P.H.M	
1	6-3-11	I&I HIGHLIGHTS	BRD	

CATANIA ENGINEERING ASSOCIATES, INC.
Consulting Engineers
520 WEST MacDADE BOULEVARD
MILMONT PARK, PA. 19033-3311
TEL. (610) 532-2884
FAX. (610) 532-2923

ELIZABETH A. CATANIA — REGISTERED PROFESSIONAL ENGINEER — COMMONWEALTH OF PENNSYLVANIA

SANITARY SEWER MAP
TOWNSHIP OF DARBY

DWN. BY M.N.G.	DSG. BY	FIELD BOOK/PAGE	SCALE 1" = 400'	DRAWING NO. 81675-112
CKD. BY C.J.C.	C.	C.	DATE 06/03/04	SHEET 1 OF 1 SHEETS

Industrial Waste Report

DELCORA is currently responsible for issuance of Industrial Waste Permits to companies discharging into Township Sewers. The regulation governing discharge of the industrial wastes as well as any program for surveillance and monitoring of industrial waste discharges is maintained by DELCORA.

There are no known industrial permits for the Township system.

Folcroft Borough

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Folcroft Borough**	Permit No.:	**PAN/A**
Mailing Address:	**1555 Elmwood Ave.**	Effective Date:	**N/A**
City, State, Zip:	**Folcroft, PA 19032**	Expiration Date:	**N/A**
Contact Person:	**Lisa McGuigan**	Renewal Due Date:	**N/A**
Title:	**Borough Administrator**	Municipality:	**Folcroft Borough**
Phone:	**610-522-1305**	County:	**Delaware**
Email:	**folcroftmanager@comcast.net**	Consultant Name:	**Catania Engineering Associates, Inc.**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

Please note that the Chapter 94 Spreadsheet was used to show monthly average flows and projections; it is understood that this report is for a collection system only.

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

- ☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)
- ☐ List summarizing each extension or project attached (**Attachment**)
- ☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

No sewer extensions were constructed or approved within the past calendar year. A copy of the sanitary sewer system is attached.

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

Borough forces are used for inspection and troubleshooting of the sanitary sewer system. Contract forces are used for routine maintenance.

DELCORA just recently completed a total system video inspection which will be utilized (and had been) to identify deficencies. The Borough is currently preparing a bid package for upgrades to the pump station.

Folcroft Borough, in coordination with DELCORA has flow metering equipment to monitor flows through the sanitary system. CSL Services, Inc. was contracted by DELCORA to calibrate and maintain the flow monitoring equipment throughout 2018. Calibration reports are maintained by DELCORA. Folcroft currently has 6 flow meters installed that monitor approximately 93% of the total flow throughout the Borough.

Flow data is utilized to assist in the identification of areas that require attention.

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☒ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☐ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

There was one (1) SSO reported in 2018. See attached report.

Based upon previous video inspections, the system is in fair to good condition.

There are no known areas of capacity exceedance and no areas of capacity exceedance expected in the next five years.

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☐ The collection system does not contain pump stations

☒ The collection system does contain pump stations (Number – **1**)

☒ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☒ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)

☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Joseph Possenti, Jr.	
Name of Responsible Official	Signature
610-522-1305	2/19/19
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Elizabeth A. Catania	Elizabeth A Catania, PE
Name of Preparer	Signature
610-532-2884	2/7/19
Telephone No.	Date

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PADEP Chapter 94 Spreadsh
Sewage Treatment Plar

Reporting Year: 2018

Facility Name: Folcroft Borough - Muckinipates

Permit No.:

Persons/EDU: 3.5

Existing Hydraulic Design Capacity: MGD
Upgrade Planned in Next 5 Years? Year:
Future Hydraulic Design Capacity: MGD

Existing Organic Design Capacity: lbs BOD5/day
Upgrade Planned in Next 5 Years? Year:
Future Organic Design Capacity: lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2014	2015	2016	2017	2018
January	0.49119	0.47165	0.47493	0.44547	0.4559
February	0.53713	0.44129	0.57034	0.41127	0.5559
March	0.49678	0.54982	0.52758	0.51043	0.58345
April	0.5109	0.48475	0.46254	0.49349	0.49927
May	0.54192	0.41702	0.51602	0.46744	0.51213
June	0.46413	0.46754	0.44652	0.41005	0.49275
July	0.42374	0.44021	0.43354	0.41508	0.42885
August	0.38941	0.36865	0.37527	0.42077	0.46734
September	0.35025	0.3453	0.35532	0.38943	0.4626
October	0.35406	0.40365	0.37339	0.39494	0.4619
November	0.39475	0.38886	0.37464	0.40223	0.5297
December	0.434	0.46186	0.41282	0.41676	0.49948
Annual Avg	0.449020267	0.436716114	0.443574157	0.431446989	0.495771557
Max 3-Mo Avg	0.516530316	0.491949199	0.524283544	0.490452797	0.546206502
Max : Avg Ratio	1.15	1.13	1.18	1.14	1.10
Existing EDUs	2,239.0	2,239.0	2,239.0	2,239.0	2,239.0
Flow/EDU (GPD)	200.5	195.0	198.1	192.7	221.4
Flow/Capita (GPD)	57.3	55.7	56.6	55.1	63.3
Exist. Overload?					

Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2014	2015	2016	2017	2018
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Annual Avg					
Max Mo Avg					
Max : Avg Ratio					
Existing EDUs	2,239	2,239	2,239	2,239	2,239
Load/EDU					
Load/Capita					
Exist. Overload?					

Projected Flows for Next Five Years (MGD)

	2019	2020	2021	2022	2023
New EDUs	1.0	1.0	1.0	1.0	1.0
New EDU Flow	0.0002	0.0002	0.0002	0.0002	0.0002
Proj. Annual Avg	0.45151	0.45171	0.45191	0.45211	0.45231
Proj. Max 3-Mo Avg	0.51447	0.5147	0.51493	0.51515	0.51538
Proj. Overload?					

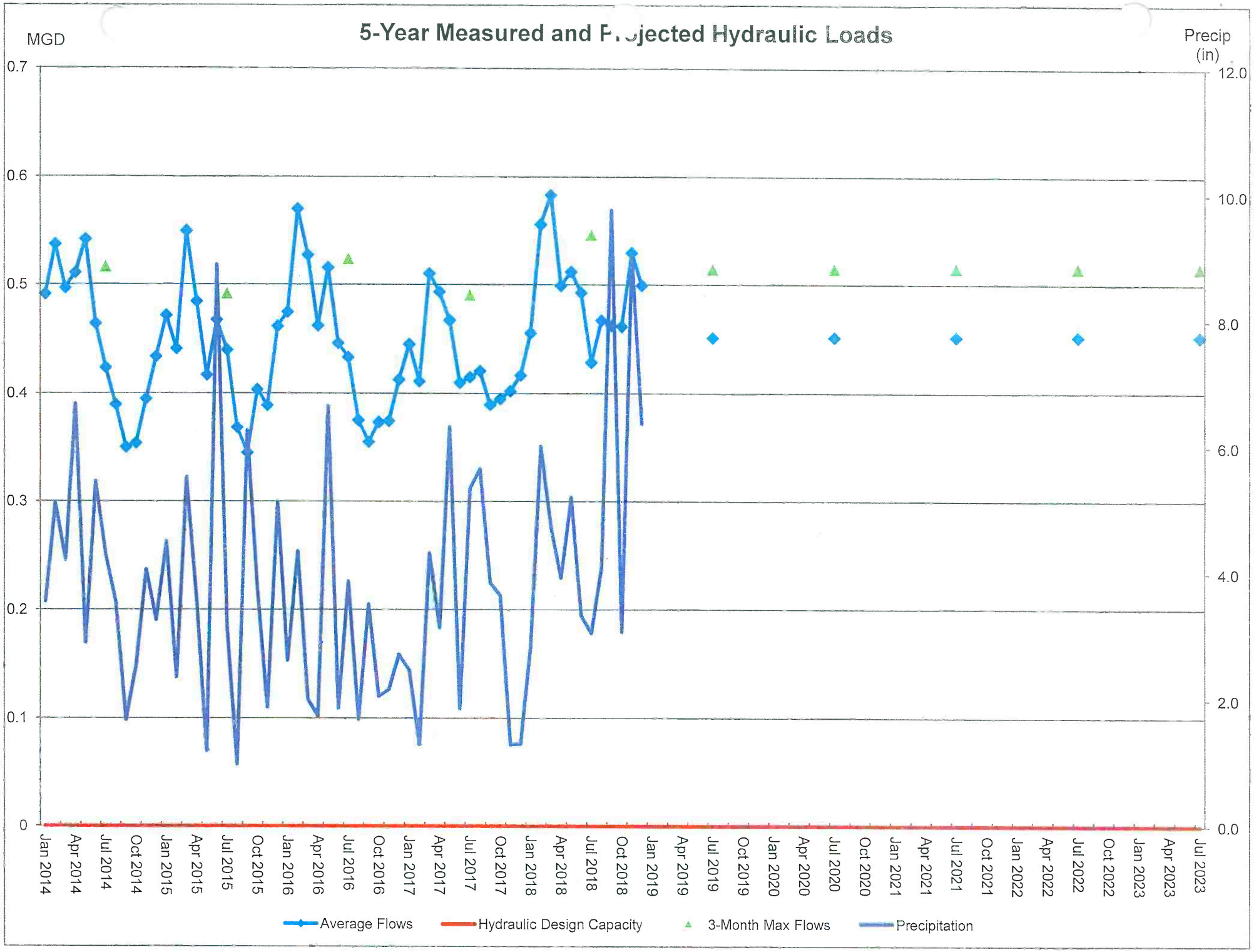
Projected BOD5 Loads for Next Five Years (lbs/day)

	2019	2020	2021	2022	2023
New EDUs	1	1	1	1	1
New EDU Load	0.584	0.584	0.584	0.584	0.584
Proj. Annual Avg	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Proj. Max Avg	#DIV/0!				
Proj. Overload?	#DIV/0!				

Show Precipitation Data on Hydraulic Graph?

Total Monthly Precipitation for Past Five Years (Inches)

Month	2014	2015	2016	2017	2018
January	3.56	4.52	2.63	2.48	2.85
February	5.12	2.36	4.36	1.3	6.02
March	4.23	5.52	2.01	4.33	4.74
April	6.69	3.58	1.75	3.15	3.94
May	2.91	1.2	6.65	6.33	5.21
June	5.46	8.89	1.87	1.86	3.34
July	4.3	3.16	3.88	5.35	3.06
August	3.55	0.98	1.7	5.66	4.11
September	1.69	6.27	3.52	3.86	9.76
October	2.54	3.76	2.06	3.66	3.08
November	4.07	1.89	2.17	1.3	9.03
December	3.27	5.14	2.72	1.31	6.38


5-Year Measured and Projected Hydraulic Loads
MGD
Precip (in)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Jan 2014
Apr 2014
Jul 2014
Oct 2014
Jan 2015
Apr 2015
Jul 2015
Oct 2015
Jan 2016
Apr 2016
Jul 2016
Oct 2016
Jan 2017
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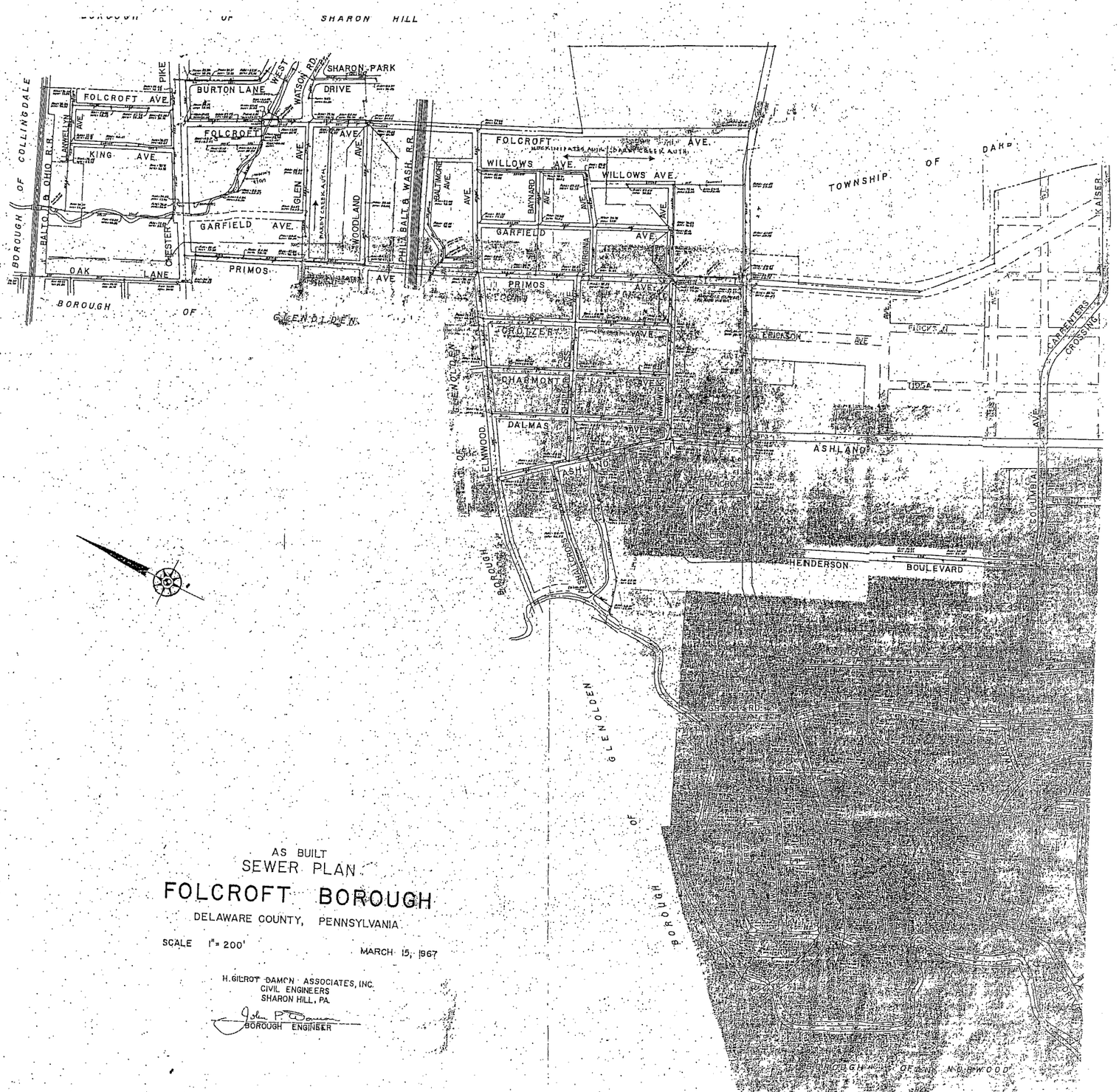
Apr 2020
Jul 2020
Oct 2020
Jan 2021
Apr 2021
Jul 2021
Oct 2021
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023
Apr 2023
Jul 2023
Average Flows
Hydraulic Design Capacity
3-Month Max Flows
Precipitation

FOLCROFT BOROUGH MONTHLY FLOW METER DATA

Meter No.	Meter Location	Total EDUs	Outside EDUs	January			February			March			April			May			June			Comments
				Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	
3	327 South Avenue (75 yards in the woods)	59		782,045	428		737,915	447		815,962	446		737,464	417		768,406	420		697,036	394		
4A	931 Taylor Road (in front of PS)	1,118		2,923,293	84		2,636,358	84		3,457,369	100		2,889,729	86		2,982,157	86		2,858,958	85		
4B	931 Taylor Road (in front of PS)	504		4,998,018	320		5,202,445	369		5,462,129	350		4,863,005	322		4,860,327	311		4,534,398	300		
5	1847 Shallcross Avenue (in the rear, 100 yards in the woods)	442		4,697,274	343		6,182,163	500		7,414,309	541		5,711,900	431		6,442,605	470		5,926,351	447		
	Unmetered Areas (average volume from all meters)	116		732,206	204		806,420	248		937,058	261		775,998	223		822,518	229		765,870	220		Use average EDU from all Propsect meters for estimate
	TOTAL	**2,239**	**0**	**14,132,836**			**15,565,301**			**18,086,827**			**14,978,096**			**15,876,013**			**14,782,613**			

Meter No.	Meter Location	Total EDUs	Outside EDUs	July			August			September			October			November			December			Comments
				Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	Recorded Volume	Gallons EDU/Day	Outside EDUs	
3	327 South Avenue (75 yards in the woods)	59		696,130	381		744,917	407		698,016	394		794,619	434		806,455	456		752,718	412		
4A	931 Taylor Road (in front of PS)	1,118		2,716,890	78		2,831,460	82		2,764,015	82		2,872,419	83		3,237,371	97		3,317,319	96		
4B	931 Taylor Road (in front of PS)	504		4,583,491	293		4,881,381	312		5,001,187	331		5,029,372	322		5,652,080	374		5,358,955	343		
5	1847 Shallcross Avenue (in the rear, 100 yards in the woods)	442		4,608,987	336		5,279,247	385		4,695,665	354		4,880,512	356		5,371,769	405		5,252,656	383		
	Unmetered Areas (average volume from all meters)	116		688,760	192		750,585	209		718,997	207		741,838	206		823,293	237		802,200	223		Use average EDU from all Propsect meters for estimate
	TOTAL	**2,239**	**0**	**13,294,258**			**14,487,590**			**13,877,880**			**14,318,760**			**15,890,968**			**15,483,848**			



AS BUILT

SEWER PLAN

FOLCROFT BOROUGH

DELAWARE COUNTY, PENNSYLVANIA

SCALE 1" = 200'

MARCH 15, 1967

H. GILROY DAMON ASSOCIATES, INC.
CIVIL ENGINEERS
SHARON HILL, PA.

BOROUGH ENGINEER

Sanitary Sewer Overflow (SSO) Report to PADEP– Water Management **DEP fax: 484-250-5971**

Please check the appropriate box ☒ Dry Weather Overflow ☐ Wet Weather Overflow

1. Date, Name, Phone # of person completing this report	Date: December 3, 2018 Name : Elizabeth A. Catania, PE Phone #: 610-532-2884
2. Your organization name and address ?	Name: Catania Engineering Associates, Inc. County: Delaware Address: 520 W. MacDade Blvd., Milmont Park, PA 19033 Township/Municipality: Ridley Township
Sewer system owner and permit number	Folcroft Borough
3. Date found and specific location of SSO. Including Municipality/County (if different from #2) ?	Date: November 28, 2018 Municipality: Folcroft Borough Location(Street & #): end Shallcross Avenue in woods County: Delaware
4. How was SSO discovered? By whom ?	Mike Coyle, CSL Inc. while completing routine maintenance on DELCORA meter
5. Start and end time of SSO (actual or estimate?)	10:34 AM estimated – end – 1:30 PM
6. Date, time and name of person who notified PADEP originally to notify of SSO ?	Date : November 28, 2018 Time: 10:35AM Name: Marianne French, Mgr.
7. Description and actual or estimated volume of SSO	Raw sewage – volume unknown
8. Where, precisely, did SSO go ? (land, roadway, basement, swale, storm sewer, creek, etc) Please include creek name or street location.	Muckinipattis Creek and banks
9. What caused SSO ? How was it stopped ?	Debris buildup downstream in Muckinipattis Authority Interceptor; Line jetted to remove blockage by contractor called in by Borough
10. Describe extent of contamination and how it was cleaned up	Sewage ran about 20' to creek. Borough maintenance cleaned area of debris.
11. What actions will be taken to prevent a re-occurrence ? When ?	Periodic cleaning of line for short term; long term solution to raise line from invert of Muck interceptor.
12. Other Comments ?	
13. Downstream notifications made: (All downstream users such as public water supplies must be notified)	unknown

Pump Station Summary

Pump Station 47 is owned by Folcroft Borough, and operated / maintained by DELCORA. The pump station has 3, 15 HP pumps rated for 1195 GPM each. Emergency stand-by power is provided to the Pump Station via a gas powered generator.

Industrial Waste Report

DELCORA is currently responsible for issuance of Industrial Waste Permits to companies discharging into Folcroft Borough Sewers. The regulation governing discharge of the industrial wastes as well as any program for surveillance and monitoring of industrial waste discharges is maintained by DELCORA.

There are no known industrial permits for the Folcroft Borough system.

Glenolden Borough

Stantec

Stantec Consulting Services Inc.
1060 Andrew Drive Suite 140, West Chester PA 19380-5602

February 25, 2019
File: 176710050

Attention: David P. Damon, PE
Muckinipates Authority
c/o David P. Damon, PE, PLS
H. Gilroy Damon Associates, Inc.
PO Box 1158
1343 Chester Pike
Sharon Hill, PA 19079

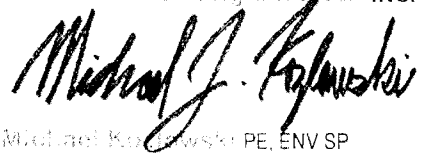
Dear Mr. Damon,

Reference: 2018 Chapter 94 Report – Borough of Glenolden

Enclosed please find five (5) copies of Glenolden Borough's Annual Chapter 94 Report with one (1) electronic copy provided via email. If you have any questions or require additional information, please contact our office.

Sincerely,

Stantec Consulting Services Inc.



Michael J. Kozlowski PE, ENV SP
Municipal Engineer
Phone: 610-840-2511
Fax: 610-840-2501
michael.kozlowski@stantec.com

Attachment

c. Brian Razzi (w/enclosures) / Mayor Quinn / James Boothby / Ken Pfaff / Anne Cicala / Gerard McGettigan / Matt Ruggiero / Marianne Calabrese / Kim Duffy / Michael Puppio, Esquire / Barbara Bonnett, DELCORA (3 copies)

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pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2018

☐ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☒ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Borough of Glenolden**	Permit No.:	**PA**
Mailing Address:	**36 Boon Avenue**	Effective Date:	
City, State, Zip:	**Glenolden, PA 19036**	Expiration Date:	
Contact Person:	**Brian Razzi**	Renewal Due Date:	
Title:	**Borough Manager**	Municipality:	**Borough of Glenolden**
Phone:	**(610) 583-3221**	County:	**Delaware**
Email:	**boroughmanager@glenoldenborough.com**	Consultant Name:	**Stantec**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:

   ☐ Line graph for flows attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:

   ☐ Line graph for organic loads attached (**Attachment**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☒ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

See attached

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

Check the appropriate boxes:

- ☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)
- ☐ List summarizing each extension or project attached (**Attachment**)
- ☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

No sewer extensions completed or planned

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

See attached

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

See attached

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☒ The collection system does not contain pump stations

☐ The collection system does contain pump stations (Number –)

☐ Discussion of condition of each pump station attached (**Attachment**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☒ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)

☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☐ Sewage Sludge Management Inventory attached (**Attachment**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☐ Flow calibration report attached (**Attachment**)

RESPONSIBLE OFFICIAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Brian Razzi, Borough Manager
Name of Responsible Official

Signature

610-583-3221
Telephone No.

2/15/19
Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Eileen M. Nelson, Stantec	
Name of Preparer	Signature
610-840-2500	2/25/2019
Telephone No.	Date

Stantec

February 15, 2019
File No. 176710050

SUPPLEMENTAL REPORT INFORMATION

SECTION 1, 2, AND 3. FLOWS, 5-YEAR ORGANIC AND HYDRAULIC LOADING PROJECTIONS

The sewer service area covered by this report includes the majority of the Borough as well as tributary Municipalities as depicted on the attached DELCORA METER AND EDU PLAN. The neighboring tributary municipalities that convey sewage to the DELCORA interceptor through the Borough boundaries and meters include Ridley Township, Borough of Norwood, the Borough of Collingdale, Darby Township and the Borough of Folcroft. In addition, sewage from several areas of the Borough is conveyed out of the Borough to neighboring municipality's metered areas; including Ridley Township, Darby Township and the Borough of Folcroft. A graph showing the monthly average hydraulic loadings for the previous five years is attached. There are six (6) meters that generated the monthly average data shown on the graph. The locations of the meters and areas that flow to the meters are shown on the DELCORA METER AND EDU PLAN. Through DELCORA's metering plan, approximately 86% percent of the Borough's sewer is directly metered. The remaining unmetered areas flows are estimated using the average volume per EDU from the metered portions of the Borough.

There are currently 2,217 connections from the Borough to DELCORA.

Information regarding estimated flow for 2018 was gathered from two sources; the water usage provided by Aqua PA for 2018 and from the DELCORA metering program. Note the flows based on the metering program are considerably greater than per the water usage. The flows reported by DELCORA for 2018 are 1.29 MGD in comparison to the 1.14 MGD for 2017. The disparity between water usage and metered flows continues with average daily flows based on Aqua's water usage being 379,532 gallons and DELCORA's being 1,285,938 gallons. This is in part attributed to rain-fall derived infiltration & inflow (RDII) throughout the system. We are working with the Borough to re-evaluate methods for a comprehensive sewer flows program. This includes the investigation and analysis of the sewer flows and potential I & I sources in an effort to determine a more accurate flow analysis including factors that may be contributing to the differences between flows based on water usage and meters. The Borough plans to address RDII issues that may be encountered during this program.

The BOD load is based on a figure of 0.17 lbs. per equivalent person applied to water usage. The total suspended solids loading is based on 0.22 lbs. per equivalent person applied to water usage. An equivalent person is equal to a flow of 100 GPD. Based on this information, the hydraulic and organic loadings for 2018 are in Table A.

Table A 2018 Hydraulic and Organic Loading

	Aqua PA	DELCORA
Average Daily Flow- Gallons	379,532	1,285,938
Average Monthly Flow- Gallons	11,544,108	39,113,956
Maximum Monthly Flow- Gallons	12,001,200	54,889,404
Organic Loading (BOD)	645 lbs/day	N/A
Suspended Solids	835 lbs/day	N/A

There were no new connections in the past five years and there is one new connection projected within the next five years. The new connection is planned at the proposed single family dwelling unit at 29 N. Scott Ave. In addition, the March 2013 DVRPC Analytical Data Report of Regional, County, and Municipal Population and Employment Forecasting indicated the Borough will not experience any significant change in population over the next five years. Flow projections using a 5-year adjusted annual flow using the DELCORA metering data have been calculated (Tables B, C and D). These calculations use the flat-line method which results in the adjusted annual flow for the next five years to be the same as the actual average over the past five years (Table B). The flat-line method is applicable since the Borough is built-out, there is insignificant impacts of the minimal EDUs connected / projected as well as there is no population growth expected. An EDU is equivalent to 250 GPD.

Table B Adjusted Annual Flow

Year	AA Flow in MGD	Max. Monthly Flow in MGD	All projects connected/Flow Adjustment in MGD	Adjusted AA Flow in MGD
2014	1.215	1.626	0	1.215
2015	1.029	1.476	0	1.029
2016	1.100	1.224	-4 projects = - 0.001	1.099
2017	1.143	1.405	0	1.143
2018	1.286	1.771	0	1.286
Total	**5.773**	**7.502**	**Total**	**5.772**
5 Yr. Avg.	**1.155**	**1.50**	**5 Yr. Adj. Avg.**	**1.154**

The hydraulic ratio of 1.30 calculated for the past five years is based on the ratio of the average maximum monthly flow of 1.50 MGD to the average annual flow of 1.155 MGD (Table B).

The projected annual average flow is the same as the current average annual flow of 1.155 MGD since the connections have negligible impact on the flow (Table C). The projected maximum monthly flows are calculated by multiplying the annual average flows by the hydraulic ratio for each year (Table C).

Table C- Projected Annual Flow

Year	Previous Year's Annual Average Flow	New EDUs	Increased Flow (MGD)	Projected Annual Average Flow (MGD)	Projected Max Month Flow (MGD)
2019	1.155	1	0	1.155	1.50
2020	1.155	0	0	1.155	1.50
2021	1.155	0	0	1.155	1.50
2022	1.155	0	0	1.155	1.50
2023	1.155	0	0	1.155	1.50

The flat-line approach has also been used to project the Organic Loading Projections over the next five years. Table D shows calculations for the average organic loading over the past five years.

Table D- Average Organic Loadings Past Five Years

Year	Organic Loading Lbs. per Day
2014	704
2015	694
2016	682
2017	678
2018	645
Total:	**3403**
Average:	**681**

Average annual BODs loadings are projected over the next five years using the average loadings for the past five years. The maximum monthly flow BODs loading projections are calculated by multiplying the hydraulic ratio of 1.30 by the average loadings (Table E).

Table E- Organic Loading Projections

Year	Average Annual BODs Loading Projections (lbs/day)	Maximum Monthly BODs Loading Projections (lbs/day)
2019	681	885
2020	681	885
2021	681	885
2021	681	885
2022	681	885

SECTION 4. SEWER EXTENSIONS

No extensions were constructed in 2018. No sewer extensions are projected within the next year.

SECTION 5. PROGRAM FOR SANITARY SEWER MONTORING, MAINTENANCE AND REPAIR

Borough personnel perform routine maintenance of the sewer system including periodic flushing and cleaning as needed with the Borough's Jet-Pac cleaner and weekly inspections of manholes. When a sewer back up occurs, the Borough contracts with 'A to U Services' to record television videos and images of the mains and lateral connections

within the area of the back-up. The recordings are reviewed and if a deficiency is observed, the system is analyzed, a method to rehabilitate the system is developed and a contractor is hired to correct the problem. The Borough Manager also monitors and tracks DELCORA's metering data and if an abnormal reading is noticed, they will perform an initial inspection of the sanitary system using field personnel to see if there is a problem that requires further investigation with videos and then repairs. In addition, as described in Section no. 3, the Borough will address potential RDII sources and flow issues that may be encountered during the sewer flows program.

The sanitary sewer was rehabilitated in the area of the cul-de-sac of Railroad Avenue. A sinkhole was found and investigation by the Borough and A to U Services found a pipe from the sewer manhole was not connected to any active sewer laterals. The pipe was capped and the area backfilled.

PennDOT replaced an existing bridge on MacDade Boulevard between the intersection of Dalmas Avenue and Werner Avenue which required the relocation of the existing sanitary mains to clear the area of the proposed culvert construction. Construction occured from winter 2017 until the summer of 2018. The construction includes three (3) new sanitary sewer manholes, 47 linear feet of 12-inch diameter SDR 26 PVC pipe, 71 linear feet of 18-inch diameter SDR 26 PVC pipe, and 81 linear feet of 18-inch diameter Class 55 DI pipe.

The Borough continued with providing public education to the residents regarding illicit connections to the sanitary sewer as part of their correction plan of action. This was achieved through quarterly publications in the "Prime Newspaper", their website and a public meeting. The Borough also continued with use and occupancy inspections requiring disconnection of illicit connections as a requirement for a permit.

SECTION 6. CONDITION OF THE SEWER SYSTEM

The gravity mains are generally in good condition and we are not aware of any present or future system capacity exceedance issues.

The sanitary sewer system has not changed in size or extent in the past year. The Borough has approximately 16.4 miles of sanitary sewer ranging in sizes from 8" to 18". All the gravity sewers in the Borough are conveyed to DELCORA via gravity. There are no combined sewers in Glenolden. The pipe lengths, diameters, materials and age are as follows:

Length (mi)	Diameter	Material	Age
0.15	8-inch	PVC Pipe- SDR 35	2008
14.45	8-inch	Terra Cotta	Unknown
0.29	10-inch	Terra Cotta	Unknown
0.76	12-inch	Terra Cotta	Unknown
0.009	12-inch	PVC Pipe- SDR26	2018
0.64	15-inch	Terra Cotta	Unknown
0.057	18-inch	Terra Cotta	Unknown
0.013	18-inch	PVC Pipe- SDR 26	2018
0.015	18-inch	DIP	2018

As noted in number 5 above, periodic flushing and cleaning of the system is performed as needed. The Borough has continued with their thirteen (13) year corrective plan to maintain the integrity of the system through regular

cleaning and select rehabilitation to prevent / eliminate bypassing, sanitary sewer overflows and infiltration and inflow. This includes the Borough engaging 'A to U Services' to clean approximately 25% of the system on a yearly basis, amounting to approximately 22,000 linear feet of main piping. This work was completed in 2018 and will continue annually.

No surcharges and no SSO's were encountered by the Borough in 2018.

SECTION 7. SEWAGE PUMPING STATIONS

No pump stations exist within the Borough's control.

SECTION 8. INDUSTRIAL WASTES

There are no industrial discharges located in the Borough.

SECTION 9. CORRECTIVE ACTION PLAN

There have been no existing or projected overload conditions identified in the collection and conveyance system.

SECTION 10. SEWAGE SLUDGE MANAGEMENT INVENTORY

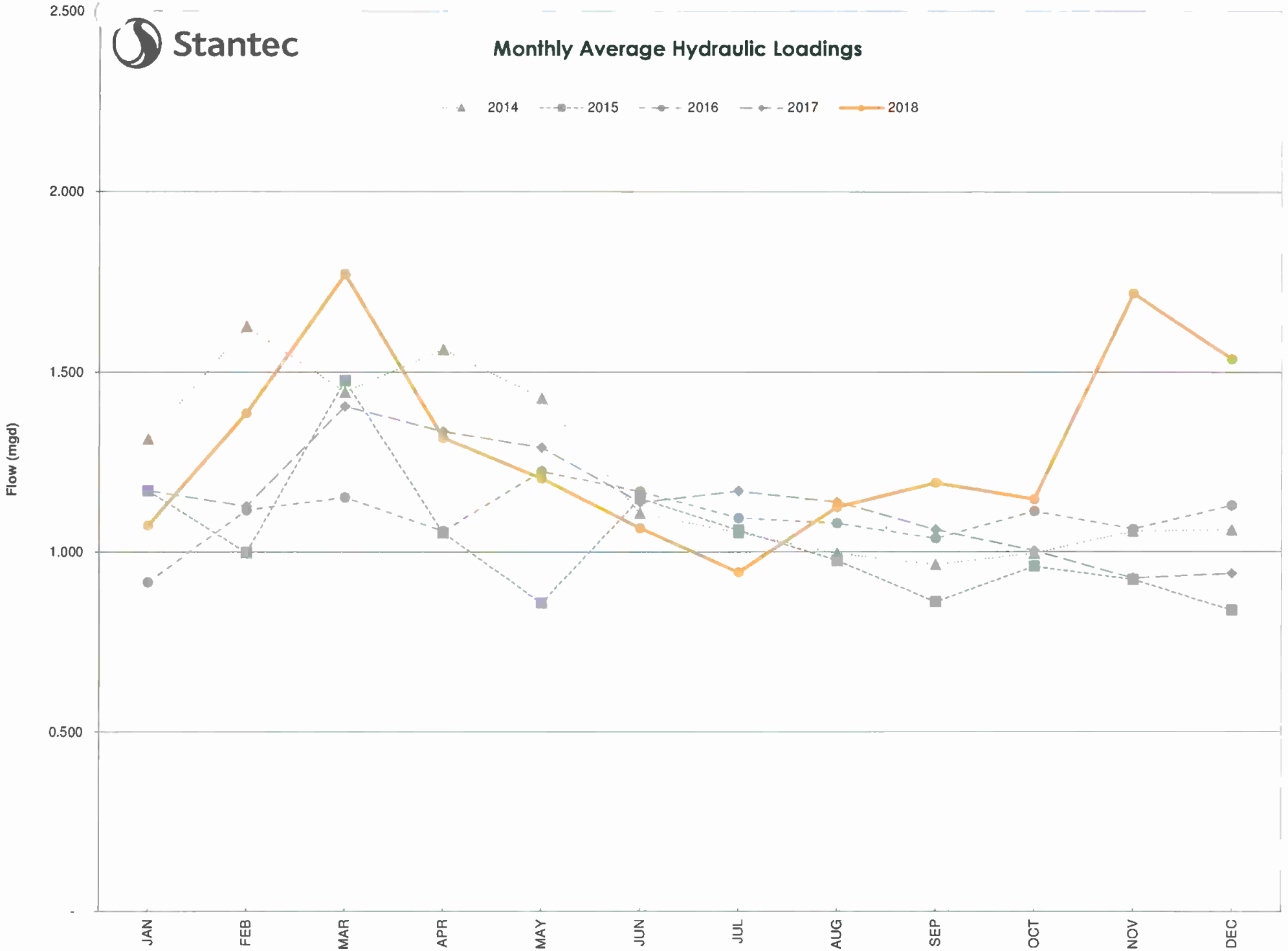
Not applicable for a collection system and therefore, no action required by the Borough for this item.

SECTION 11. CSO REPORT

Not applicable for a collection system and therefore, no action required by the Borough for this item.

SECTION 12. CALIBRATION REPORTS

The flow metering equipment has been installed and is being maintained by DELCORA's consultant, CSL Services, Inc. and they will be providing calibration reports. Therefore, no action required by the Borough for this item.


Stantec
Monthly Average Hydraulic Loadings
2014
2015
2016
2017
2018
Flow (mgd)
2.500
2.000
1.500
1.000
0.500
-
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC